small quantity, and compared with its mate irrigated only by the indifferent fluid, a fatigue record being made from both, more intense contractions frequently occur in the poisoned muscle at the beginning of the experiment, and may last until exhaustion sets in. When a fatigue record is being made from a muscle with the circulation intact, intravenous injection of a fatigue substance causes augmentation of contraction. The author concludes that the treppe is due to the augmenting action of fatigue substances in small quantities — the same substances which in larger quantities cause depression or fatigue.

An excellent mode of demonstrating the augmenting action of CO_2 in the cat is to record the contractions of the tibialis anticus in the living animal, and while the record is being made, to clamp the trachea. A marked treppe follows.

If two corresponding muscles be compared, one with the circulation intact, and the other with its arteries ligated, the latter muscle performs more intense contractions and exhibits a more rapidly developing treppe, owing to the accumulation of fatigue substances.

The chemical theory of the treppe is able to explain several other known phenomena. The author has experimented on both frogs and cats. The augmenting action of the fatigue substances seems to be observed even when curare is employed.

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The influence of the red corpuscles upon the viscosity of the blood.

By **RUSSELL BURTON-OPITZ.**

[*From the Physiological Laboratory of Columbia University, at the College of Physicians and Surgeons.*]

The method by means of which the following determinations of the viscosity were made has been described in Pflüger's Archiv, Vol. 82, p. 464.

Having determined the coefficient for fresh ox serum at 37° C. the serum was gradually concentrated by the addition of definite quantities of red blood corpuscles (washed). The viscosity of the "blood" was tested after each addition of corpuscles.

The following data may serve as examples:

	Spec. Grav.	No. of Red Corpuscles.	Viscosity Coefficient.
Serum.....	1.0248	——	2397.7
S + 30 c.c. corp	1.0382	4,000,000	1442.9
S + 30 c.c. corp.....	1.0467	4,700,000	1009.3
S + 30 c.c. corp.....	1.0524	5,700,000	851.6

Thus, the increase in the number of red corpuscles caused a corresponding increase in the viscosity. It is also obvious that the red corpuscles constitute the principal factor in determining the viscosity of the blood.

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A new recording stromuhr, with demonstration.

By **RUSSELL BURTON-OPITZ.**

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The cylinder of this stromuhr is placed horizontally and carries below its floor a valve, by means of which the inflowing blood can be diverted alternately into the right and left half of the instrument. The piston within the cylinder moves back and forth, therefore, in a horizontal direction and records its movements by means of a pulley arrangement and a writing lever upon the smoked paper of a kymograph.

On account of its great sensitiveness, and the possibility of low adjustment, this stromuhr is especially fitted for measuring the blood flow in the veins.

The instrument has been used by the author in testing possible vaso-motor reactions in the pulmonary circuit. It was connected with the vein draining the middle lobe of the left lung. The nerves in the vicinity of the ganglion stellatum were stimulated. So far the experiments have given negative results.